

Lower South Fork Coquille Analysis Area  
Environmental Assessment

Myrtlewood Resource Area

Coos Bay District

EA Number OR 128-97-25

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**Analysis File - available at the Coos Bay District Office**

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## I. PURPOSE AND NEED FOR ACTION

The Bureau of Land Management (BLM) proposes to implement forest management activities in the Lower Fork South (LSF) Coquille Analysis Area. The analysis area is approximately 46 miles southeast of Coos Bay, Oregon near the town of Powers. It includes the Mill Creek, Dement Creek, Rowland Creek, Baker Creek, Salmon Creek, Woodward Creek and Yellow Creek drainages and all frontals north of Powers, Oregon that are tributary to South Fork Coquille River. The total analysis area is 65,669 acres in size. The BLM manages 7,368 acres (11%) of the analysis area; the U. S. Forest Service manages 4,235 acres, and the remaining lands are private. The proposed harvest activities are located in T30S-R13W, T31S-R12W, and T31S-R13W; Willamette Meridian of Coos County.

The purpose of this Environmental Assessment (EA) is to analyze the effects of harvesting timber from this analysis area and actions associated with the timber sales. The proposed actions would contribute to the District's decadal Probable Sale Quantity (PSQ).

The Proposed Action includes: 139 acres of regeneration harvest and 172 acres of commercial thinning in the General Forest Management Area (GFMA); 2 acres of regeneration harvest and 117 acres of density management thinning in Connectivity. The commercial thinning and density management thinning in the Connectivity acreage includes 103 acres of density management in the Riparian Reserves. Planned harvest systems include ground-based, skyline, and helicopter yarding. The proposed projects would include 1.8 miles of temporary road construction (all of which would be decommissioned after harvest), 5.2 miles of road renovation, 0.5 miles of road improvement, and closure of 6.4 miles of existing roads. The proposed projects could be accomplished by multiple timber sale contracts sold in Fiscal Year (FY) 1999.

Management goals for this area include:

- Limit spread of Port Orford Cedar (POC) root rot disease (*Phytophthora lateralis* - PL)
- Address socio-economic commitment by promoting the production of merchantable timber through multiple timber sales from GFMA, while retaining some larger trees and snags to maintain forest health, productivity, and biological diversity.
- Increase the productivity of GFMA lands by thinning overstocked stands.
- Meet water quality.
- Manage road systems through road closures and decommissioning to maintain or improve wildlife habitats, water quality, hydrologic function, and reduce the open road density.

Areas considered for timber harvest are outside of Marbled Murrelet Reserves (MMRs) and Late Successional Reserves (LSRs).

This EA is tiered to the *Final - Coos Bay District Proposed Resource Management Plan*, (FRMP, BLM, 1994), which is in conformance with the *Final Supplemental Environmental*

*Impact Statement on Management of Habitat for the Late Successional and Old Growth Forest Related Species Within the Range of the Northern Spotted Owl* and its Record of Decision (ROD), (Northwest Forest Plan, Interagency, 1994).

This EA incorporates by reference the *Port Orford Cedar Management Guidelines*, (BLM, 1994); the *Western Oregon Program - Management of Competing Vegetation*, (FEIS, BLM, 1989); and the *Watershed Analysis for Lower South Fork Coquille*, (BLM, 1996). Actions described in this EA are in conformance with the Aquatic Conservation Strategy Objectives listed on page B-11 and the Standards and Guidelines for Riparian Reserves on pages C-31 to C-37 of the Northwest Forest Plan. These documents are available for review at the Coos Bay District Office of the BLM, North Bend, Oregon.

The actions proposed in this EA are consistent with Oregon's Coastal Salmon Restoration Initiative (CSRI), the Coquille Watershed Association Action Plan (CWAAP), and the National Marine Fisheries Service's March 18, 1997 Biological Opinion and Conference Opinion on programmatic activities covered in the Coos Bay District's RMP.

The Analysis File contains additional information used by the interdisciplinary team (IDT) to analyze impacts and alternatives and is hereby incorporated by reference.

### Scoping

The scoping process identified the agency and public concerns relating to the proposed projects and defined the issues and alternatives that would be examined in detail in the EA. The general public was informed of the planned EA through letters to those on the Resource Area's mailing list, those receiving the Coos Bay *Planning Update*, and through the District's Web Site. A copy of the scoping mailing list is in Section A of the Analysis File.

Scoping by the IDT identified four issues.

### Identified Issues

#### 1. Landscape Pattern

Key Indicators:     Habitat connections  
                             Snag and upland down log availability

#### 2. Contribute to the District's Probable Sale Quantity (PSQ)<sup>1</sup>

Key Indicators:     Estimated timber volume (thousand board feet)  
                             Estimated timber volume from Key Watersheds (thousand board feet)

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<sup>1</sup> The PSQ would contribute to the decadal PSQ for the District. This is not intended to be the PSQ that would be sustained in the Analysis area for future decades.

### 3. Riparian Reserve Functions

Key Indicators: Surface erosion and mass wasting potential  
Large woody debris (LWD) recruitment potential  
Riparian dependant/associated species

### 4. Roads

Key Indicators: Open road density  
Spread of *Phytophthora lateralis* (PL)  
Sediment delivery  
Impacts to resources

### Management Objectives

- Commercially thin GFMA stands to maintain growth rates, maintain good crown ratios, manage species composition, capture mortality of small trees, and produce larger, more valuable logs for the future.
- Conduct density management thinnings in Connectivity and Riparian Reserves to accelerate growth of trees, provide large diameter snags and down logs in the future, promote the development of understory vegetation, harvest mortality of small trees as stand develops, maintain good crown ratios, and manage species composition. Density management thinnings in Connectivity would also produce larger, more valuable logs for the future.
- Reduce road density on BLM-managed lands within the analysis area.
- Contribute to the District's decadal PSQ volume commitment.

### Issues Identified but Eliminated from Detailed Analysis

Fisheries

Survey and Manage Species

Special Status Species

Water Quality [including the City of Powers municipal water supply, and water quality limited 303(d) streams (summer temperature)]

Reasons for elimination are included in Section B of the Analysis File.

### Alternatives Considered but Eliminated

Based on information available at the time the LSF Coquille Watershed Analysis was completed in April, 1996, there were approximately thirty-one (31) potential harvest units considered in the analysis area (335 acres of regeneration harvest, 185 acres of commercial thinning, 142 acres

of density management thinning in Connectivity, and 60 acres Late-Successional Reserve density management) which represented approximately 16.9 MMBF<sup>2</sup> of PSQ volume. The 5-year timber sale plan projected approximately 10 MMBF of harvest from this analysis area to contribute to the decadal PSQ for the District. After completion of surveys and field reviews, only sixteen (16) potential units were left to be considered for harvest, representing approximately 8.1 MMBF of volume. This narrowed the scope and limited the options for development of action alternatives. A map of the units not included in the action alternatives and rationale for their elimination or deferral can be found in Section C of the Analysis File.

The following is a list of the primary reasons that some stands were not included in the action alternatives:

- Some regeneration harvest units were eliminated because of presence of Marbled Murrelets in or near them.
- Some regeneration harvest units (or portions of units) were eliminated because of presence of Del Norte salamanders.
- Some regeneration harvest units were deferred due to discovery of previously unidentified streams during field reviews. Other units were deferred because stand age was found to be too young for regeneration harvest.
- Potential density management thinning in the Connectivity and Late Successional Reserve density management units (or portions of units) were eliminated because their current stand conditions were not conducive to treatments at this time.
- Four other potential regeneration harvest units were also considered at the Watershed Analysis level and recommended to be deferred from harvest this decade, due to the recent harvest activity adjacent to these units.

The ID Team also considered an alternative of harvesting timber through multiple sales over the decade. This option was eliminated for the following reasons: 1) the ID Team determined they could better predict outcomes and analyze cumulative effects if all reasonably foreseeable actions were combined, 2) a broader scope of analysis permits a more coordinated and comprehensive approach to management of the transportation system, and 3) manpower is limited to do this level of analysis for multiple entries.

Helicopter yarding all units, which would preclude any new road construction and reduce the amount of renovation, was also considered as an alternative. This alternative was eliminated for the following reasons: 1) this would have required reconstruction of previously decommissioned roads, 2) commercial thinning units would have to be helicopter yarded beyond ½ mile, which is generally considered to be uneconomical, and 3) this would have required temporary bridges which could have impacted bat habitat.

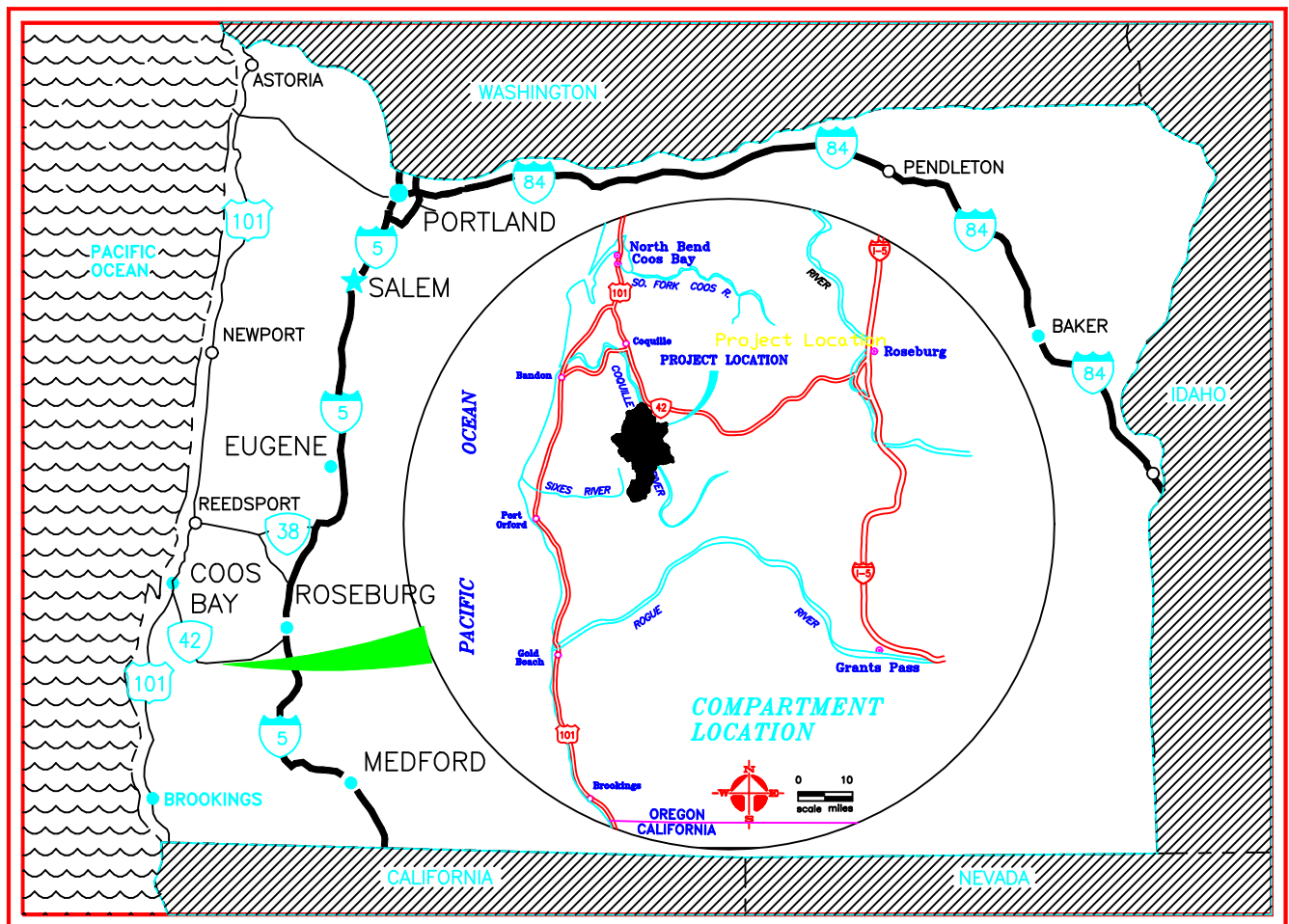
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<sup>2</sup> MMBF - million board feet

# Vicinity Map

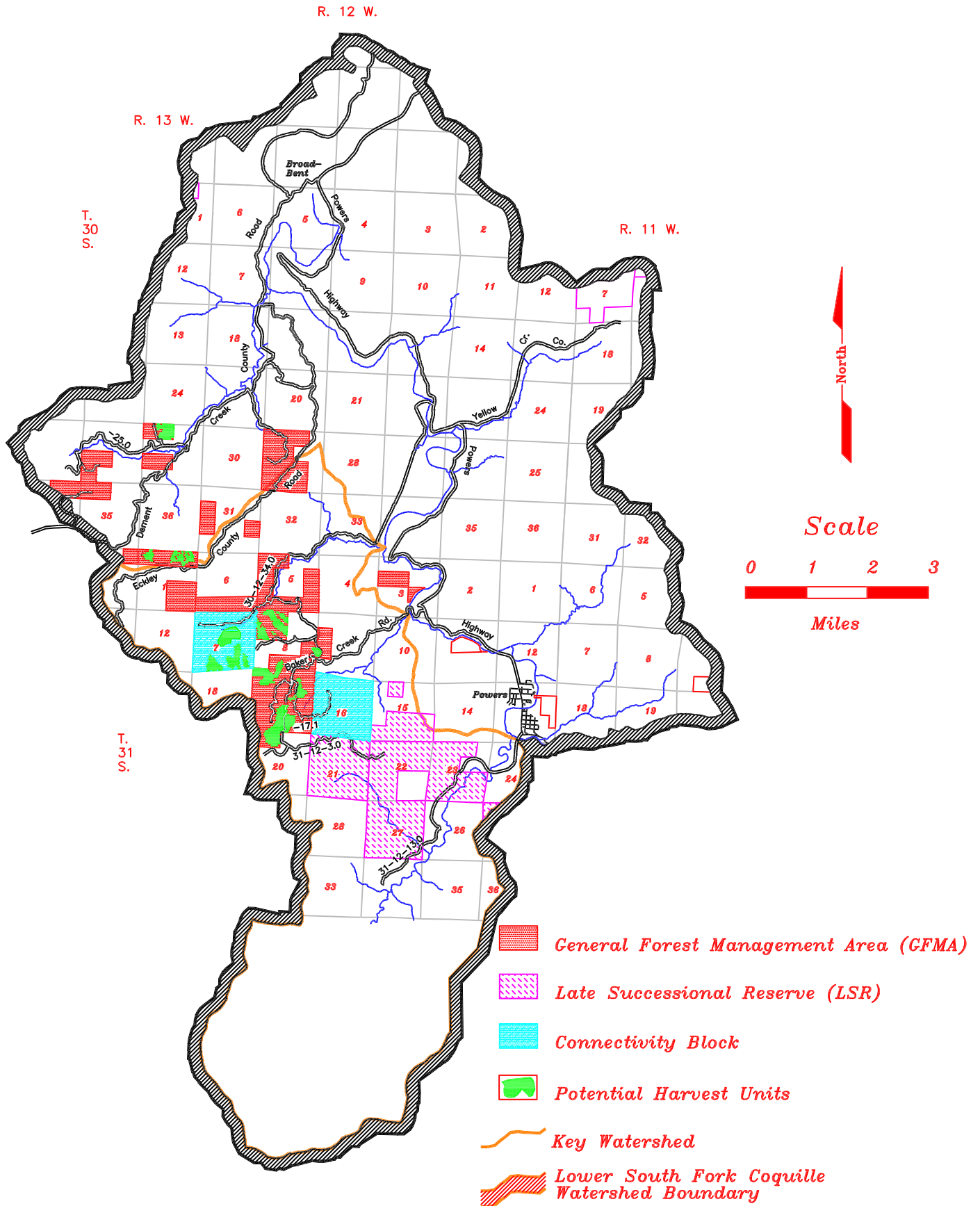
## Lower South Fork Coquille Analysis Area EA

### Myrtlewood Resource Area Coos Bay District BLM





# LOWER SOUTH FORK COQUILLE ANALYSIS AREA MYRTLEWOOD RESOURCE AREA COOS BAY DISTRICT BLM



## **II. ALTERNATIVES INCLUDING THE PROPOSED ACTION**

### **Alternative I - No Action**

Under this alternative, no timber harvest or road management activities would occur within the LSF Coquille Analysis Area at this time. Meeting the District's decadal PSQ volume commitment would have to be accomplished from other analysis areas.

### **Alternative II - Proposed Action**

This alternative consists of 5 regeneration harvest units in the GFMA (139 acres), 1 regeneration unit in Connectivity (2 acres), 6 commercial thinning units (172 acres), and 4 density management thinning units in Connectivity (117 acres); totaling 430 acres. All perennial non fish-bearing streams retain the interim Riparian Reserve widths of 220 feet (one site potential tree height - see Section P of the Analysis File) on each side of the stream channels. All fish-bearing streams retain the interim Riparian Reserve widths of 440 feet on each side of the stream channels. Intermittent streams retain the interim Riparian Reserve widths of 220 feet on each side of the stream channel except for three cases. Riparian Reserves on three (3) intermittent streams were analyzed and the boundaries adjusted to 110 feet on each side of the stream channel. Approximately 10 acres of Riparian Reserve would be converted to GFMA through these modifications. Approximately one acre of GFMA would be converted to Riparian Reserve. In all cases, the adjustments would meet the Aquatic Conservation Strategy (ACS) Objectives. For details on Riparian Reserve adjustments, see Section O of the Analysis File.

Future stocking of regeneration harvest units would closely resemble the original stand species composition through planting and natural seeding.

Commercial thinnings (CT) would retain approximately 110 - 145 trees/acre. Density management thinnings (DMT) would retain approximately 66 - 133 trees/acre. In both cases, spacing would vary throughout the thinning units and hardwoods would be thinned also. The preferred leave tree species would be Douglas-fir (DF) versus Grand Fir. DF is more resistant to rot and would provide better future coarse woody debris (CWD) and wildlife trees. Port Orford Cedar leave trees would be spaced at least 50' apart to limit spread of PL and no POC would be left within 50' of roads. This alternative would include density management (thinning) in approximately 103 acres (of the 430 total) of Riparian Reserves associated with the commercial thinning and density management thinning units.

Regeneration harvest units would retain approximately 8 wildlife trees/acre in the GFMA units and 12 wildlife trees/acre in the Connectivity unit. Skyline cable systems would be used for harvest in 9 units, combination of skyline and helicopter in 2 units, helicopter yarding in 4 units, and ground-based system with designated skid roads in 1 unit. Approximately 100 feet of new road construction would occur (and be fully decommissioned after use) in a Riparian Reserve, but would not cross any stream channels.

This alternative could be accomplished through multiple timber sales in FY99. Appendix 1 contains detailed unit descriptions. Appendix 2 contains maps showing roads to be constructed, improved or renovated for this alternative.

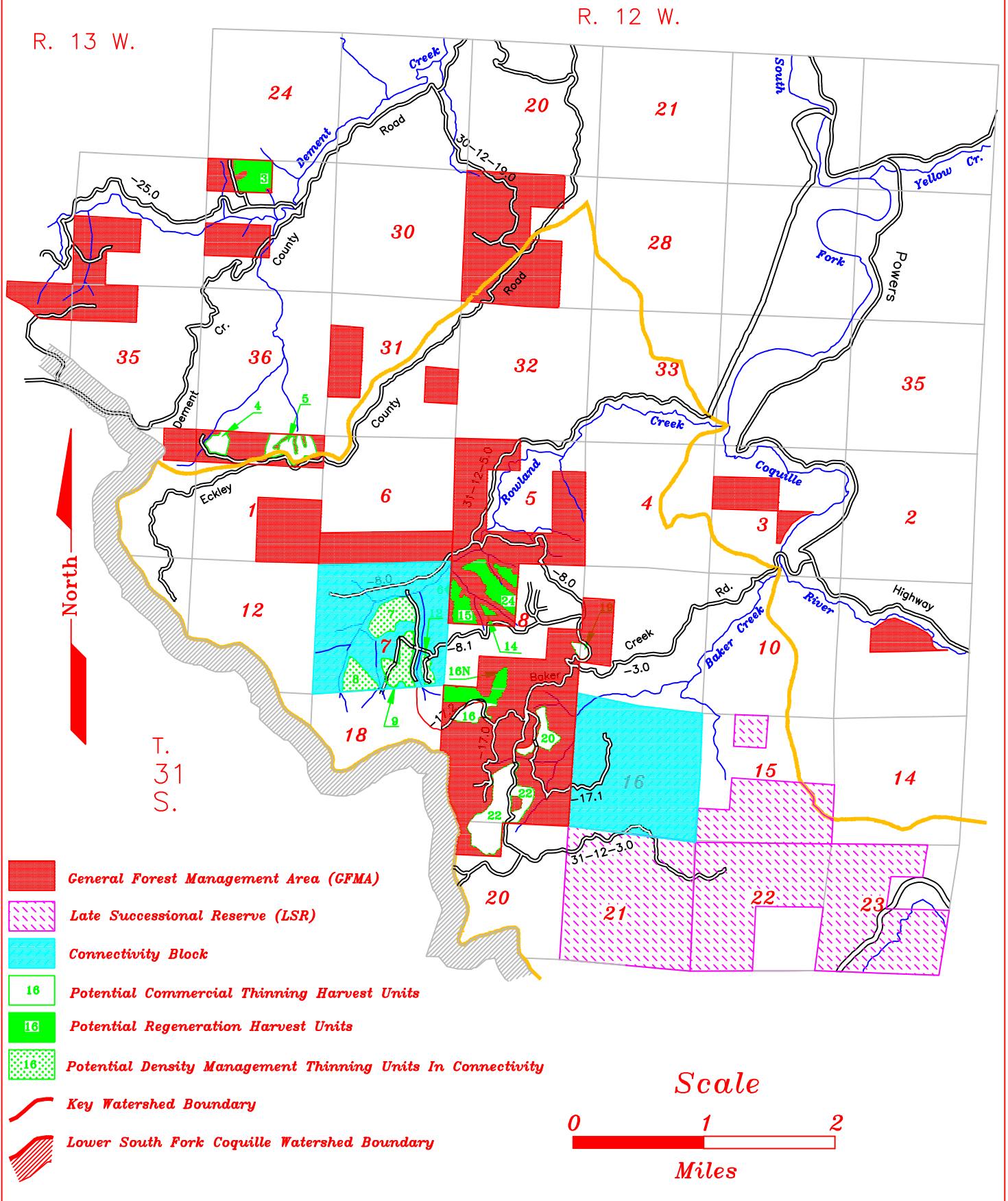
Regen Harvest Acres (Skyline)	Regen Harvest Acres (Heli)	CT Harvest Acres (Skyline)	CT Harvest Acres (Heli/Skyline)	CT Harvest Acres (Grnd)	DMT Harvest Acres (Skyline)	DMT Harvest Acres (Heli)	Total Acres	Total Volume (MBF)
96	45	69	95	8	55	62	430	8,151

Regen - Regeneration  
CT - Commercial Thinnings  
DMT - Density Management Thinnings  
Heli - Helicopter  
Grnd - Ground based  
MBF - Thousand Board Feet

N.C. - Rock Decom. (miles)	N.C. - Dirt Decom. (miles)	N.C. - Dirt Full Decom. (miles)	Road Improve. (Rock) Decommission (miles)	Road Renovation - Rock (miles)	Road Renovation - Dirt (miles)	Road Miles To Be Closed*
.3	.5	1.1	.5	3.5	1.8	8.0

N.C. - New Construction  
Decom. - Decommission; Roads to be blocked and treated as necessary to restore hydrologic functions after completion of timber sale contract.  
Full Decom. - Full Decommission; Roads to be decommissioned, subsoiled, and planted after completion of timber sale contract.  
\* - Roads closed under the Road Closure Recommendations, Appendix 2.

# *LOWER SOUTH FORK COQUILLE ANALYSIS AREA* *Alternative II – Proposed Action – Harvest Units*



### **Alternative III - Alternative Action**

The difference between this alternative and Alternative II is that Alternative III proposes to use only skyline and ground-based systems for harvesting the timber. As a result, some acreage was dropped due to areas that could not be reached with a skyline system. This alternative requires additional road construction (some in Riparian Reserves), improvement, and renovation. The same units were considered as those in Alternative II.

This alternative consists of 5 regeneration harvest units in the GFMA (135 acres), 1 regeneration unit in Connectivity (2 acres), 6 commercial thinning units (157 acres), and 4 density management thinning units in Connectivity (114 acres); totaling 408 acres. Interim Riparian Reserve widths and adjusted Riparian Reserve boundaries would be the same as in Alternative II. Approximately 8 acres of Riparian Reserve would be converted to GFMA through these modifications. Approximately one acre of GFMA would be converted to Riparian Reserve. In all cases, the adjustments would meet the ACS Objectives. For details on Riparian Reserve adjustments, see Section O of the Analysis File.

Future stocking of regeneration harvest units would closely resemble the original stand species composition through planting and natural seeding.

Commercial thinning and density management thinning prescriptions would be the same as Alternative II. This alternative would include density management (thinning) in approximately 93 acres (of the 408 total) of Riparian Reserves associated with the commercial thinning and density management thinning units. Regeneration harvest units would retain approximately 8 wildlife trees/acre in the GFMA units and 12 wildlife trees/acre in the Connectivity unit. Skyline cable systems would be used for harvest in 15 units and a ground based system with designated skid roads in 1 unit. Approximately 900 feet of new road construction would occur (and be fully decommissioned after use) in Riparian Reserves, but would not cross any stream channels.

This alternative could be accomplished through multiple timber sales in FY99. Appendix 1 contains detailed unit descriptions. Appendix 2 contains maps showing roads to be constructed, improved or renovated for this alternative.

Regen Harvest Acres (Skyline)	Regen Harvest Acres (Heli)	CT Harvest Acres (Skyline)	CT Harvest Acres (Heli/Skyline)	CT Harvest Acres (Grnd)	DMT Harvest Acres (Skyline)	DMT Harvest Acres (Heli)	Total Acres	Total Volume (MBF)
137	0	149	0	8	114	0	408	7,831

Regen - Regeneration  
 CT - Commercial Thinnings  
 DMT - Density Management Thinnings  
 Heli - Helicopter  
 Grnd - Ground based  
 MBF - Thousand Board Feet

N.C. - Rock Decom. (miles)	N.C. - Dirt Decom. (miles)	N.C. - Dirt Full Decom. (miles)	Road Improve. (Rock) Decommission (miles)	Road Renovation - Rock (miles)	Road Renovation - Dirt (miles)	Road Miles To Be Closed*
.7	1.6	1.7	1.2	3.4	2.3	8.0

N.C. - New Construction  
 Decom. - Decommission; Roads to be blocked and treated as necessary to restore hydrologic functions after completion of timber sale contract.  
 Full Decom. - Full Decommission; Roads to be decommissioned, subsoiled, and planted after completion of timber sale contract.  
 \* - Roads closed under the Road Closure Recommendations, Appendix 2.

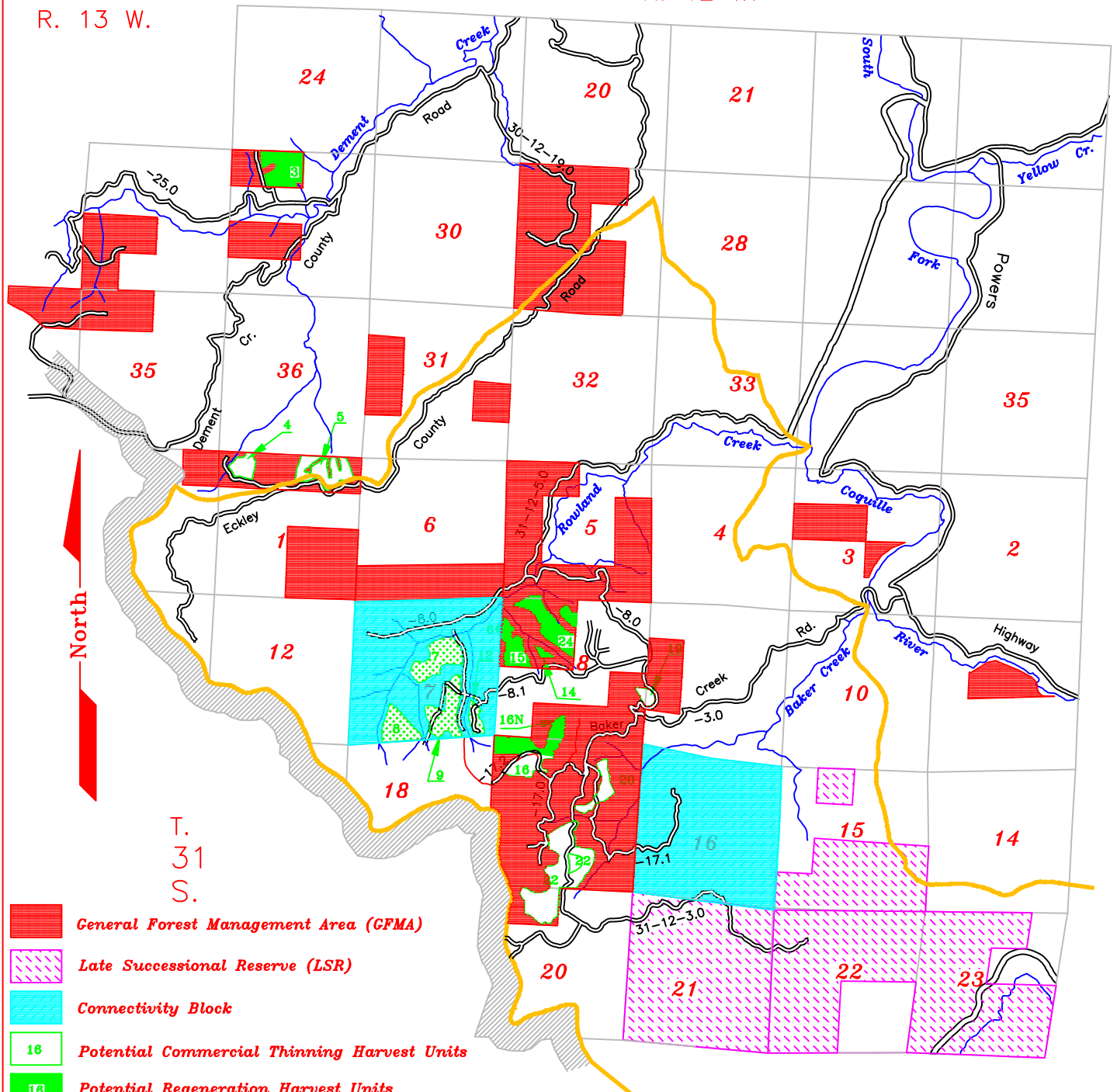
### **Design Features for Action Alternatives and Monitoring**

Design features and monitoring can be found in Appendix 1.

# **LOWER SOUTH FORK COQUILLE ANALYSIS AREA** **Alternative III – Alternative Action – Harvest Units**

R. 12 W.

R. 13 W.



T. 31 S.

- General Forest Management Area (GFMA)
- Late Successional Reserve (LSR)
- Connectivity Block
- 16 Potential Commercial Thinning Harvest Units
- 16 Potential Regeneration Harvest Units
- 16 Potential Density Management Thinning Units In Connectivity

- Key Watershed Boundary
- Lower South Fork Coquille Watershed Boundary

Scale



**Summary of Consequences - Relative Impacts of Alternatives**

<b>Consequence</b>	<b>Alternative I No Action</b>	<b>Alternative II Proposed Action</b>	<b>Alternative III Alternative Action</b>
<b>Landscape Pattern (Issue 1)</b>			
Habitat connections	Low	Moderate	High
Snag/down log availability	Moderate	Low	Low
<b>Contribute to the District's PSQ (Issue 2)</b>			
Estimated timber volume (MBF)	0	8,151	7,831
Estimated timber volume from Key Watershed (MBF)	0	6,701	6,081
<b>Riparian Reserve Functions (Issue 3)</b>			
Net Reduction of Riparian Reserve (Acres)	0	9	7
<b>Roads (Issue 4)</b>			
Open road density (Miles/Section) <sup>2</sup>	2.29	2.06	2.06
Spread of Phytophthora lateralis (PL)	Moderate	Very Low	Low
Sediment delivery*	Moderate	Low	Low-Moderate
Impacts to resources	Wildlife*: High Aquatic Habitat: Moderate	Wildlife*: Low Aquatic Habitat: Low	Wildlife*: Moderate Aquatic Habitat: Low

\* Short Term



### III. AFFECTED ENVIRONMENT

VEGETATION: Most of the Lower South Fork Coquille Analysis Area is in the Western Hemlock vegetation series. All units in the action alternatives are in this series. Plant associations found in the units are Western Hemlock/Salmonberry, W. Hemlock/Swordfern, and W. Hemlock - Tanoak/ Evergreen Huckleberry/ Pacific Rhododendron. Dominant overstory conifer trees are Douglas-fir and Grand Fir. Tanoak and Red alder are also found in the overstory, but to a lesser degree. Port Orford Cedar (POC) is found predominantly in the understory as seedlings or non-merchantable trees. POC is generally found to have a higher occurrence in the overstory in stands that are older than 140 years old in this analysis area. Other hardwood species include myrtle, madrone, bigleaf maple, cherry, and Oregon ash in minor amounts. No Pacific yew was observed in any of the proposed harvest units.

A road system survey of POC and PL symptoms on roads was begun on March, 1997 and completed by June 1997 for the Lower S.F. Coquille Analysis area. For details regarding specific site locations, see Silviculturist's Report (Section E of the Analysis File). PL was observed primarily along roads, old cat trails used for salvage logging, and POC trees that had their boughs harvested. Additional units may have PL, but no symptoms were observed at this time. The spread of the disease is influenced by human activities and natural events. The natural events include rainfall, saturated water flow, movement of animals, and movement of soils by natural erosion. There is zero chance of POC becoming extinct due to the disease. Even in areas of heavy disease occurrence, POC exists. POC is a prolific seeder and produces seeds early, between 5 and 9 years of age. Some POC exhibits a degree of resistance to the disease. A continuing screening process is being conducted by the USFS and Oregon State University to identify additional resistant trees and a breeding program to enhance resistance.

Noxious weeds, including French broom, Scotch broom, a few gorse sites (mainly on private lands), and tansy ragwort are found in the analysis area.

WILDLIFE: The LSF Coquille Analysis Area supports numerous bird, reptile, amphibian and mammal species. There have been no intensive bird surveys in the analysis area for other than federally listed species, such as the northern spotted owl and the marbled murrelet. Resident and neo-tropical migratory songbirds, raptors, upland game birds and waterfowl species have been observed and documented. Examples are Wilson's warblers, rufous hummingbirds, bald eagles, peregrine falcons, California quail, wood duck and common merganser. Reptiles and amphibians (collectively known as herptiles) include southern torrent and Dunn's salamanders, tailed frogs and northern alligator lizards. Mammal species known to occur include bobcat, mountain lion, Roosevelt elk, mink and bats. Additional information on wildlife and wildlife habitat within the analysis area can be found on pages 15-18 of the Lower South Fork Coquille Watershed Analysis.

SOILS: There are five major soil types, associations or complexes in the planning area; the Digger-Preacher-Umpcoos association (14F), Etelka silt loam type (18E), Etelka-Whobrey silt loam type (21D), Etelka-Whobrey-Remote complex (22E), and the Remote loam type (49 E&F). These soils are suitable for commercial conifer production with most site index ratings at 3 (scale of 1-5). Due to their high clay contents and slopes, these soils are moderately to highly

susceptible to surface compaction, surface erosion, and gully erosion when disturbed. Due to the predominant gradients and deep soils, the most common mass movement features in these soils are earth flow or creep. The exception is the 14F soils, which are subject to shallow rapid debris flows in wet headwalls. Poor drainage and water tables at a depth of 24 to 36 inches from December to March can be expected on the Etelka and Whobrey soils.

GEOMORPHOLOGY/HYDROLOGY/WATER QUALITY: The Lower South Fork Coquille Watershed Analysis includes geological and physiographic descriptions on pages 5-13, and water quality/quantity descriptions on pages 36-42. Seven distinct low elevation drainages ranging from 6 to 12 mi<sup>2</sup> are present in the analysis area, including Dement, Rowland, Baker, Mill, Woodward, Yellow, and Salmon Creeks. Stream channel density averages 7.6 mi/mi<sup>2</sup>. Stream flow responds quickly to precipitation events. Stream channel condition is fair for most analysis area streams. Sediment is a moderate problem in the drainages. Rowland and Salmon Creeks do not meet DEQ's temperature standard for the South Coast Basin and are listed on DEQ's 303(d) list.

FISHERIES: The LSF Coquille Analysis Area supports populations of coho salmon, fall chinook salmon, spring chinook salmon, winter steelhead, coastal cutthroat trout (resident and sea-run), Pacific lamprey, speckled dace, prickly sculpin, reticulate sculpin, threespine stickleback, and largescale suckers. The distribution of anadromous and resident fish within the analysis area is illustrated on page 19 of the Lower South Fork Coquille Watershed Analysis. The analysis area is within the Oregon Coast Ecologically Significant Unit (ESU) of coho salmon and steelhead, but does not include any portion of the Southern Oregon/Northern California ESU of coho salmon, the Klamath Mountain Province ESU of steelhead, or the Umpqua River ESU of cutthroat trout. All Oregon Coast stocks of winter steelhead are proposed for listing under the Endangered Species Act (ESA). No other fish stocks within the analysis area are listed or proposed for listing under the ESA at this time. Additional information on fish stocks within the analysis area can be found on pages 18-20 and 67-77 of the Lower South Fork Coquille Watershed Analysis.

RIPARIAN RESERVES: There are approximately 3,750 acres of interim Riparian Reserve on BLM-managed land within the analysis area. A majority of these Riparian Reserves and associated streams contain low to moderate amounts of soft (decay class 3+), imbedded, down logs from previous harvest activities and natural recruitment. However, nearly 27% of the Riparian Reserves on public lands will be at least 160 years of age at the end of this decade, and this is expected to increase to nearly 39% in the next 40 years. At approximately 160 years of age, trees reach a size that contribute appreciably to large woody debris (LWD). Thus, natural recruitment of LWD in Riparian Reserves on public lands is expected to increase in the near future and fill the void created as the current LWD decays. Approximately 35% of the Riparian Reserves are less than 40 years of age at present. In these stands, very few large class 1 logs will be recruited into streams or Riparian Reserves within the next 120 years. Very few "hard" (class 1) down logs are present. With no treatments, the stands will "self-thin" over the next 40 years and begin to provide smaller pieces of class 1 logs to riparian forests and streams (average piece size 10-20 inches diameter). Additional information on the condition of Riparian Reserves within the analysis area can be found in the Lower South Fork Coquille

Riparian Reserve Evaluation, and on pages 59-62 of the Lower South Fork Coquille Watershed Analysis.

**TRANSPORTATION SYSTEM:** At present, the open road density on BLM-managed lands within the analysis area is approximately 2.3 mi/mi<sup>2</sup>. The portion of the transportation network in the Lower South Fork Coquille Watershed that is controlled by the Bureau of Land Management is primarily comprised of two major road systems. The Baker Creek system located in T. 31 S., R. 12 W. and Russell Creek Road located between Dement Creek County Road and Eckley Ridge County Road. These two road systems access both federal and private lands, consequently the Bureau has entered into Reciprocal Right-Of-Way Agreements with Georgia Pacific-West, Menasha Corporation, and Lone Rock Timber Company. These Reciprocal Right-Of-Way Agreements give all land owners access to their lands and at the same time reduce road density by eliminating the need for duplicate road systems.

It should be noted that only 11% of the roads within the analysis area are located on BLM land, nearly 8% of which are controlled by Coos County, and 7% of which are controlled by private timber companies under Reciprocal Right-Of-Way Agreements.

The majority of the roads in the analysis area are gravel surfaced timber haul routes. The grades change throughout the system, ranging from 0-24%. Many of the unsurfaced roads in the analysis area fall into two categories: either newly constructed roads or old roads in some stage of hydrologic recovery. Most older dirt spurs and roads are not contributing sediment to stream channels from their surfaces. However, in areas where roads divert or concentrate runoff, or intercept subsurface flow, the resulting increase in stream-flow has accelerated channel erosion and entrainment of sediment from out of channel sources.

#### **IV. ENVIRONMENTAL CONSEQUENCES**

##### **Alternative I - No Action**

Under this alternative, no management activities would take place within the analysis area at this time.

##### **Direct and Indirect Effects**

##### **Landscape Pattern (Issue 1)**

##### ***Key Indicator:* Habitat Connections**

Past and present management actions on private and public lands within the analysis area have left large portions of the landscape in an early seral condition. Much of the remaining late-seral /old-growth habitat exists solely in isolated and fragmented blocks on public lands. Although the functionality of these stands is questionable due to the lack of interior habitat for late-seral related wildlife species, this alternative will likely benefit the habitat connections between forest reserves, by moving them into late-seral/old growth condition sooner. Therefore, this alternative is expected to benefit late-seral/old growth species.

*Key Indicator:* Snag and down log availability

This alternative is not expected to provide additional snags and down logs in the immediate future.

Contribute to the District's Probable Sale Quantity (PSQ)(Issue 2)

This alternative would not contribute any volume towards the decadal PSQ for the District, or contribute to the non-interchangeable component of PSQ volume attributed to Key Watersheds. The FRMP anticipates a certain amount of regeneration harvest in GFMA and Connectivity, commercial thinning in GFMA, and density management thinning in Connectivity. All of these treatments contribute to the District's PSQ. Opportunities to manage Connectivity or to commercially thin in the GFMA would be delayed or forgone. The Key Watershed component of the District's PSQ volume commitment would have to be shifted to other Key Watersheds.

Riparian Reserve Function (Issue 3)

No riparian trees would be harvested, girdled, or otherwise disturbed in the interim Riparian Reserves within the analysis area. Consequently there should not be any direct or indirect effects on surface erosion and mass wasting potential, LWD recruitment, or riparian dependent/associated species. The No-Action Alternative would not affect the development of the 160 year-old age class in the Riparian Reserves.

Roads (Issue 4)

*Key Indicator:* Open road density

The following table summarizes the effects of roads for all alternatives:

Table 1: Road Density

	Alt. I	Alt. II	Alt. III
Miles of new road construction <sup>1</sup>	0	1.8	4.0
Open Road Density on BLM (Miles/sq. mile) <sup>2</sup>	2.29	2.06	2.06

<sup>1</sup> All new road construction would be fully decommissioned or decommissioned.

<sup>2</sup> Open roads = roads accessible to motorized vehicles. Target open road density in the FRMP is 2.9 miles/sq. mile.

There are no direct or indirect effects to open road density under the No-Action Alternative.

*Key Indicator:* Spread of *Phytophthora lateralis* (PL)

The risk of spreading PL would persist on open roads from public and private use, such as hunting, mushroom gathering, and private timber harvest activities. Spread of PL would continue to be caused by animals such as elk and deer at current natural rates. At this time, there are approximately 1.8 miles of uninfected roads that would be at moderate risk of

infection under the No-Action Alternative. PL infection centers along roads would likely spread due to the presence of live POC trees along roadsides on BLM lands.

*Key Indicator:* Sediment delivery

In-board ditches along roads, as well as the diversion of water across roads, result in water and fine sediment delivery to stream channels above the natural rates. Increased delivery of water to stream channels also accelerates stream bank erosion. These processes directly affect the turbidity of the runoff water and the amount of fines in the stream channels, reducing the quality of the habitat for aquatic species. The continued erosion of streambanks and down cutting of channels caused by increased flows, reduces the near bank stability in the riparian areas. This process can induce windfalls, which is a disturbance factor not normally associated with early to mid-seral stands.

Although the current road density is within the acceptable range according to the FRMP, some degradation of the water quality is occurring due to the current sediment delivery situation within the analysis area. The direct effects of this alternative would allow this condition to persist, and rely on time alone to reduce the contribution from streambanks and roads.

*Key Indicator:* Impacts to resources

The existing open road density within the analysis area would likely perpetuate the current level of disturbance to wildlife, discouraging the use of habitats adjacent to these open roads. No new roads would be constructed, therefore, no new barriers (corridors or graveled surfaces) to movement would be created. The overall effect of the No-Action Alternative would be continued disturbance to wildlife and adverse impacts to wildlife habitat at the current high level.

The indirect effects of the No-Action Alternative include continued surface erosion and sediment delivery, elevated water turbidity, and accelerated sediment deposition (from 1<sup>st</sup>-order tributaries to the lower Coquille River and estuary) from 6.4 miles of roads that are not presently needed to meet the land management or transportation objectives for the analysis area. There is a moderate risk of additional impact to aquatic habitat as a result of sediment delivery from road-related surface erosion and mass wasting in this analysis area.

The likelihood of additional short and long-term sediment delivery from culvert/fill failures on all non-maintained roads, and road-associated landsliding in general, increases over time as the working life of road drainage features is eclipsed. Under the No-Action Alternative, none of the recommended road decommissioning or road surface/drainage improvements proposed under the action alternatives would be completed at this time.

## **Cumulative Effects**

### Landscape Pattern (Issue 1)

*Key Indicator:* Habitat connectivity

In unmanaged stands, the recovery of habitat connections that have been altered by past disturbances would progress at the current rate. Over time, this recovery would likely result in the reestablishment of late-seral/old-growth dependent species and their habitats. However, there is a need of some form of disturbance to alter effects of past management activities and

reintroduce biodiversity across the landscape. It is anticipated that private landowners would continue to harvest their lands at approximately the current rate and maintain them in an early-seral condition.

*Key Indicator:* Snag and down log availability

Many of the units identified are currently deficient in hard and soft snags, and down logs. Current deficiencies in hard snags and upland down logs are setting up future shortages in soft snags and upland down logs. The No-Action Alternative would not address these shortages.

#### Contribute to the District's Probable Sale Quantity (PSQ)(Issue 2)

Deferring harvest at this time may result in lost opportunities for commercial and density management thinnings in some stands. Growth in some of these stands would be reduced due to competition, resulting in decreased long-term productivity. Deferring harvest within this analysis area would shift the burden of meeting the District's PSQ commitment to other watersheds, resulting in greater cumulative effects to those areas.

#### Riparian Reserve Functions (Issue 3)

*Key Indicator:* Surface erosion and mass wasting potential

Surface erosion and mass wasting are part of the natural disturbance regime, and would continue to occur, even under the No-Action Alternative. Generally, the rates of surface erosion and mass wasting are greatest during high precipitation events and periods of high surface runoff and peakflows. Through these processes, an unknown amount of sediment enters the stream network within the analysis area annually. Past management actions within the analysis area have contributed to the rates of surface erosion, mass wasting and sediment delivery to streams via failing culverts, roadside sloughing, road surfaces, and harvest units. These observations form the baseline upon which cumulative effects must be evaluated.

The No-Action Alternative would not contribute to the surface erosion or mass wasting potential within the analysis area, because timber harvest activities on BLM-managed lands within the analysis area would be deferred at this time. Thus, the cumulative effect of the No-Action Alternative on the surface erosion and mass wasting potential within the analysis area would be to maintain the status quo. However, as demonstrated in Ziemer (1981)<sup>3</sup>, minimum root strength occurs 3-8 years after harvest in DF forests. Therefore it is anticipated that private and BLM lands harvested since 1989 may experience localized increases in sediment delivery to streams from mass wasting.

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<sup>3</sup> Ziemer, R. 1981. The role of vegetation in the stability of forested slopes. In: Proceedings, International Union of Forestry Research Organizations XVII World Conference; 1981 September 6-17; Kyoto, Japan. Ibaraki, Japan: Japanese IUFRO Congress Council. 1:297-308.

*Key Indicator:* LWD recruitment potential

For all alternatives: maturation of Riparian Reserves would generally enhance future LWD recruitment over time. However, the No-Action Alternative would not enhance the recruitment of LWD in overstocked stands less than 40 years of age in the near future.

*Key Indicator:* Riparian dependent/associated species

Maturation of Riparian Reserves should enhance the habitat of riparian dependent/associated plants and animals of concern<sup>4</sup> on BLM-administered lands. Populations of riparian dependent/associated species are expected to respond favorably to this enhanced habitat quality, within the limitations to dispersal imposed by the transportation system and checkerboard ownership pattern.

Roads (Issue 4)

*Key Indicator:* Open road density

Road density would likely increase slightly on private land as new units are identified and harvested.

*Key Indicator:* Spread of *Phytophthora lateralis* (PL)

As PL continues to spread, fewer POC would be expected to survive to maturity in and adjacent to areas of infection, with the exception of disease resistant individuals.

*Key Indicator:* Sediment delivery

A long-term reduction (>30 yrs.) in sediment delivery would be the likely outcome of this alternative on BLM-managed lands. However, many stream crossings and channel banks are actively eroding at this time, and in combination with the harvest of private lands, an overall increase in sediment delivery is expected within the analysis area.

*Key Indicator:* Impacts to resources

Since there is no change in road density, wildlife resources would retain the current habitat effectiveness and road barrier impacts would be unchanged.

Aquatic habitat has been altered throughout the Lower South Fork Coquille as a result of extension of the drainage network, changes in streamflow, sediment delivery, and passage barriers from roads. Furthermore, road-side salvage has altered LWD recruitment dynamics and contributed to the poor LWD ratings for streams within the analysis area. Cumulative effects of past road management in the analysis area have already contributed to the "at risk" status of fish stocks and poor stream habitat condition. The No-Action Alternative would likely maintain the present condition of the aquatic resources within the analysis area.

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<sup>4</sup> "Species of concern" as used herein refers to the plant and animal species expected to benefit from Riparian Reserve protection, as determined through the Lower South Fork Coquille Riparian Reserve Evaluation procedure.

## **Alternative II - Proposed Action**

### **Direct and Indirect Effects**

#### **Landscape Pattern (Issue 1)**

*Key Indicator:* Habitat Connections

The expected direct effect from this action is disturbance to the present pattern of habitat connections, namely the elimination of approximately 110 acres of late-seral (60-80 year-old) habitats and 31 acres of mature/old-growth (100-200 year-old) habitats. This disturbance is expected to impact some late-seral habitat associates. This includes groups of species such as neo-tropical migratory birds, resident birds, herptiles and some mammals. These impacts are considered to be moderate compared to Alternative III, largely due to the difference in the amount of road construction. The resulting landscape pattern is expected to provide connections to the adjacent LSR and other habitat reserves within the analysis area (see Wildlife Specialist's Report, Section F of the Analysis File).

The indirect effect is likely to be long-term enhancement of some habitats where undesirable vegetative conditions have been caused by past management actions. Commercial thinning techniques are designed to promote both structural and species diversity within the expected ranges for these forests. The proposed thinning and regeneration harvest is likely to provide higher quality early and mid-seral habitats for those species which are expected to occupy the GFMA.

*Key Indicator:* Snag and upland down log availability

The analysis area is currently considered deficient in both hard and soft snags, and upland down logs. Wildlife tree retention would occur in all regeneration harvest treatment units, and would meet the minimum hard snag and upland down logs requirements after harvest. Actions in this alternative would provide snags and down wood structures within the harvest units.

Thinning treatments are intended to accelerate growth of trees, which would provide large-diameter snags and down logs in the long term. However, thinning is also expected to provide some small hard snags through natural and incidental mortality in the short term. This modest increase in small diameter hard snag habitat is expected to improve habitat for wildlife associated with these structures, and would begin to alleviate future shortages of soft snag habitat. These units are not expected to meet hard (upland) down log requirements in the near future, because most of the available material is of insufficient size. However, this alternative proposes to leave 120 linear feet of class 1 down logs per acre in density management thinning units in the Connectivity and associated Riparian Reserves to provide immediate wildlife benefits.

Treatments of green conifers would occur in six thinning units to reduce current deficiencies in hard snags and contribute to future upland down log habitat. In general, larger-sized snags and upland down logs accommodate the needs of a greater variety of species, therefore larger trees would be considered for treatment in these areas where available.

For the above treatment proposal, the overall direct affect would be to provide structural diversity within select harvest units. These structures would be left in greater numbers than the



minimum required by State of Oregon Forest Practices Act. It is expected that this proposal provides at least the minimum adequate long-term numbers of structures to meet the wildlife resource need.

Indirectly, leaving these structures may slightly alter the fuel conditions and ignition potentials in the forest. The increase in snags and isolated large structures (wildlife trees) may increase the lightning strike potential on some stands of the analysis area. The average expected fire is small, of low intensity, and is a natural component of forest ecological community development. From a wildlife perspective, both the direct and indirect effects listed are beneficial to the development of snag and down log habitats.

#### Contribute to the District's Probable Sale Quantity (PSQ)(Issue 2)

This alternative would provide an estimated timber volume of 8,151 MBF, which would contribute to the District's decadal PSQ commitment. Approximately 6,701 MBF would contribute to the non-interchangeable decadal volume for the District that is to come out of Key Watersheds. Approximately 172 acres (of the 430 total acres treated) would be commercially thinned and approximately 117 acres (of the total acres treated) would be density management thinned in the Connectivity. These treatment acres would provide options in the future that would not be available if thinning of these stands was deferred.

#### Riparian Reserve Functions (Issue 3)

The modified Riparian Reserve network is designed to adequately protect aquatic resources and meet the ACS objectives (ROD Standards & Guidelines p. B-11), specifically with respect to protecting the sediment regime, LWD dynamics, and riparian dependent/associated species.

##### *Key Indicator:* Surface erosion and mass wasting potential

The proposed modification of Riparian Reserves on three intermittent streams should not adversely affect the surface erosion or mass wasting potential. Surface erosion and mass wasting were modeled for the analysis area, and each site where boundary adjustments were proposed was carefully reviewed to ensure that areas with a high potential for mass wasting were incorporated into the Riparian Reserve.

Modeling with the Modified Soil Loss Equation indicates that, for the soils represented within the analysis area, the vegetative-mechanical factor is the principle variable in determining the rate of surface erosion. Thus, surface erosion is highest immediately after regeneration harvest and site preparation, and decreases rapidly as a site revegetates. Model outputs indicate that surface erosion approximates background (preharvest) rates within 10 years after harvest. It should be noted that these modeling predictions refer only to on-site losses, not sediment delivery to streams. The removal of canopy from the thinning and density management areas would not adversely affect the displacement of soil particles from the forest floor. The cover from the organic matter and slash should be adequate to protect the soil particles even during high precipitation events. Surface erosion can be expected to displace soil within the disturbed areas, but delivery to a stream system is not expected. The undisturbed vegetative layer adjacent to streams is more than adequate given the slopes and parent materials in the

analysis area. Intact vegetation within Riparian Reserves should prevent overland transmission of sediments from proposed harvest units to streams. Therefore, there is not likely to be a measurable increase in sediment delivery to streams from surface erosion within proposed harvest units.

The proposed 100 feet of new road construction through the Riparian Reserve associated with EA Unit 3 would not increase the mass wasting potential of the site, because the proposed road location is stable and does not include any stream crossings. The proposed road to Unit 3 would be constructed in the dry season and fully decommissioned (including de-compaction, water barring, seeding and mulching) after use. This proposed construction does not include any stream crossings. Therefore, surface erosion of the site should be minimal.

*Key Indicator:* LWD recruitment potential

Research indicates that the vast majority (85-90%) of LWD in Oregon Coast Range streams is recruited from within 98 feet of the streambank. Thus, reducing the Riparian Reserve boundaries to one-half site potential tree height (110') may decrease the LWD recruitment potential by approximately 10% on the affected intermittent streams.

Some trees would be removed from the Riparian Reserves in conjunction with density management thinning. An average of 111 trees per acre would be felled within Riparian Reserves adjacent to Units 4, 5, 7, 8, 9, 16, 19, 20, and 22, most of which would be removed as part of the timber sale. However, a portion of the trees which are felled would be left to add class 1 material to the existing down woody debris, and improve the LWD loading in the streams associated with the thinning units.

The proposed 100 feet of new road construction through the Riparian Reserve associated with unit 3 would not adversely affect the LWD recruitment potential to the stream in question, because the area was recently harvested (1990 - County Line Overrun Unit 1).

*Key Indicator:* Riparian dependent/associated species

Alternative II would result in a net reduction of nine acres (approximately 0.24%) of the interim BLM-managed Riparian Reserve habitat. Specifically, the habitat directly affected would be the outermost (peripheral) 110' of the interim Riparian Reserve on three intermittent streams associated with Units 14 and 24. The subset of riparian-associated species of concern most likely to be directly affected by the loss of this portion of the interim Riparian Reserve includes: Northern spotted owl, American marten, bats, and those listed in the Botanist's report (Section N of the Analysis File). Alternative II would also indirectly impact the habitat of some riparian dependent species within the innermost 110' of Riparian Reserve, through edge effects (changes in humidity, temperature, light, and wind resulting from the close proximity of stand edges). The proposed Riparian Reserve boundary adjustments would not reduce the amount of old-growth habitat presently available.

Based on the viability ratings for habitats of the botanical and wildlife species/groups, narrowing the interim Riparian Reserves within the Lower South Fork Coquille Analysis Area should have very little impact to any of these species. The scale of the viability ratings is regional and the proposed narrowing of some Riparian Reserves at a local level should have minimal impacts to these species. No species of concern were identified within the affected Riparian Reserves during site surveys.

#### Roads (Issue 4)

*Key Indicator:* Open road density

The new construction would result in a short-term increase in open road density. However, the net result of all road work proposed in this alternative is a reduction in open road density on BLM land from 2.29 to 2.06 mi/mi<sup>2</sup> in the analysis area (see Table 1).

*Key Indicator:* Spread of *Phytophthora lateralis* (PL)

There would be 6.4 miles of road closures, which would reduce the spread of infection by vehicles. Roadside sanitation of POC would occur on 5.6 miles of road (68 acres of sanitation) on BLM administered lands, thus reducing the spread of PL into adjacent stands by eliminating the host plants.

Risk of infecting harvest units that are helicopter yarded would be negligible. Skyline yarded units would have a slightly higher risk, but are not likely to become infected because of mitigation measures. Compared with skyline, ground-based yarding systems incur a slightly higher risk. However, the use of mitigation measures should prevent the spread of PL into the stands. Ground based yarding would occur on only 9 acres, and use of designated skid trails would disturb soil on less than 12% of the harvest area.

Use of mitigation measures (equipment washing, roadside sanitation, and seasonal restrictions on hauling and yarding) in this action should result in a negligible overall risk of spreading PL into the timber stands.

*Key Indicator:* Sediment delivery

Under this alternative, approximately 6.4 mi. of existing road surface in the analysis area would be decommissioned (blocked, culverts removed, subsoiled, waterbarred, seeded and mulched), as needed to restore hydrologic function. Through a series of planned renovations and improvements, followed by road decommissioning efforts on BLM-administered roads, the delivery of sediment from roads and improperly functioning stream crossings would be eliminated. This would directly benefit the streams by lowering the turbidity levels and the amount of fine silt and clays in the stream beds. Additionally, 0.53 miles of privately-controlled road would be renovated. Leaving the stream crossing culverts within the road grade on some private lands would ensure improved channel function and habitat connection. These improvements would also ensure that future use of these roads by private land owners would not jeopardize the sediment regime and related recovery efforts. Sediment delivery is expected to be low and of short duration (1-5 years), because all proposed road construction would occur on stable ridges and bench locations. The long-term effect would be the reduction or elimination of potential sediment delivery from several failing culverts and road fills. In addition, the level of compaction within the analysis area would be slightly reduced by the full decommissioning of roads, and recovery of compacted surfaces would be accelerated through the blocking of other roads.

*Key Indicator:* Impacts to resources

This alternative proposes to reduce the number of open roads by installing barriers of different designs (i.e., gates, tank traps, boulders, or other obstacles). Barriers are expected to reduce the amount of access. The proposed reduction in open road density would result in less disturbance to wildlife, and should allow increased utilization of available habitat.

Decommissioned roads would eventually revegetate when traffic is eliminated; this regrowth reduces barrier effects created by roads. While the long-term effects of the new road construction are minimal, the short-term effect is an increase in the amount of road surface, which may present barriers to some small mammals, herptiles, and other animals. Roads that are temporarily closed (gated) would experience some level of disturbance due to administrative access, thus slightly reducing the benefits of gated closures.

Approximately 100' of the proposed new road construction would occur in Riparian Reserves (Unit 3). The effected portion of the Riparian Reserve has recently been harvested; therefore, the impacts to wildlife and their habitats would be negligible.

Overall, this alternative is more beneficial to wildlife than the No-Action Alternative because of the amount of road decommissioning.

Attempts at quantifying indirect effects of sedimentation from road management activities are rarely successful, because an increase in fine sediment is almost always accompanied by other environmental effects. It is well known that increased turbidity from suspended sediments can degrade fish habitat, negatively impact salmonid production, and affect other aquatic species. However, it has not been shown that suspended sediments from surface runoff causes accelerated mortality in juvenile salmonids. There are not likely to be measurable impacts of sediment delivery to fish populations under Alternative II. The open road density in the analysis area is moderate when compared to NMFS expectations of 2.0 mi/mi<sup>2</sup>.

## **Cumulative Effects**

### Landscape Pattern (Issue 1)

#### *Key Indicator:* Habitat Connections

The habitat connections adjacent to GFMA can only be assured (to any degree) within the reserve areas. Some GFMA lands are currently not functioning at desired levels, and require time for vegetation to mature. This alternative converts approximately 0.24% of the interim Riparian Reserves to GFMA, which is not considered to be detrimental for habitat connections due to their locations within the analysis area. Deferred units provide some level of refugia within the analysis area. While new construction would create forest gaps, the impact to habitat connections would be temporary. Furthermore, the proposed decommissioning would encourage revegetation of forest gaps along 6.4 miles of existing roads. In concert, the actions proposed under this alternative are expected to result in a net improvement in habitat connectivity in the long term.

#### *Key Indicator:* Snags and upland down logs

Current deficiencies in hard snags and upland down logs are setting up future shortages in soft snags and upland down logs. Long-term shortages in snags and upland down logs are likely in the analysis area. Bureau of Land Management timber harvest, and the associated mitigation under the current FRMP, should increase snag and upland down log availability on resource-limited areas. The design features of this action attempt to meet the minimum requirements of the ROD and the FRMP. Although meeting the minimum snag and upland down log needs for

the analysis area is not expected to occur until one full harvest rotation is completed, this action would move substantially toward this goal.

#### Contribute to the District's Probable Sale Quantity (PSQ)(Issue 2)

Alternative II provides approximately 2.5% of the decadal PSQ commitment for the District and approximately 22 % of the non-interchangeable PSQ volume for the District from Key Watersheds.

#### Riparian Reserve Functions (Issue 3)

*Key Indicator:* Surface erosion and mass wasting potential

Some of the roads identified for closure in the proposed action either have the potential to intercept and divert water, are presently diverting water, are actively eroding, or have stream crossings with a potential to plug and fail. In conjunction with the projects funded under the 1996 Jobs-in-the-Woods, the road decommissioning proposed in Alternative II should reduce road-related mass wasting and surface erosion within the analysis area in the long-term. However, ongoing activities on private lands within the analysis area may offset reductions realized from BLM actions.

*Key Indicator:* LWD recruitment potential

Maturation of Riparian Reserves will generally enhance future LWD recruitment over time. Alternative II would also enhance the recruitment of LWD in overstocked stands less than 40 years of age, by promoting growth and enhancing the quality of trees in this component of the Riparian Reserve. In the long term (15+ yrs), growth rate of individual trees would increase in the thinned Riparian Reserves adjacent to the thinning units; larger pieces of woody material would be contributed in a shorter period of time than would occur without thinning.

*Key Indicator:* Riparian dependent/associated species

Same as Alternative I. The proposed Riparian Reserve boundary adjustments would not alter the development of 160 year-old Riparian Reserves in the next eighty years.

#### Roads (Issue 4)

*Key Indicator:* Open road density

Road densities over two miles per square mile increase the risk of adverse effects to hydrologic functions and water quality<sup>5</sup>. In conjunction with the projects funded under the 1996 Jobs-in-the-Woods, the road decommissioning proposed in Alternative II would reduce the road density on BLM-managed lands within the analysis area to approximately 2 mi/mi<sup>2</sup>.

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<sup>5</sup> McCammon, B. 1993. Determining the risk of cumulative watershed effects resulting from multiple activities - Endangered Species Act, Section 7. USFS PNW Region, Portland, Oregon. Unpublished.

*Key Indicator:* Spread of *Phytophthora lateralis* (PL)

The BLM is proposing harvest treatments on 430 acres (6%) of land, out of a total of 7,368 acres in the analysis area. In addition the USFS manages 4,235 acres in this analysis area. USFS also strives to minimize the spread of PL (POC *Phytophthora Control* EA, 1996). Potential total impact on Federal lands in the analysis area is 4% of the total Federal ownership. Under this alternative, the spread of PL is expected to be negligible on BLM-administered lands.

The 68 acres of BLM land that would have POC cut during roadside sanitization represents less than 1% of the total BLM land that contains POC in this analysis area. The proposed management actions in the LSF Coquille Analysis Area are not likely to effect the continued existence of Port Orford Cedar over its range.

*Key Indicator:* Sediment delivery

Through the actions proposed in this alternative, the reduction of sediment over the next 10 years is expected to be considerable. The treatment of existing roads would remediate adverse impacts from past management activities. Decommissioning roads to reduce sediment delivery and foster hydrologic recovery is expected to have long-term positive effects.

*Key Indicator:* Impacts to resources

Current road management objectives allow some estimation of impacts to big game, but make it difficult to estimate impacts to other groups of wildlife; therefore, the analysis of impacts of road management is generalized. It is assumed that closing roads will provide benefits to big game species, provided no vehicle traffic is allowed to occur. Cumulatively, this alternative will provide benefits to wildlife above the No-Action Alternative, because there will be a net decrease in the overall number of roads within the analysis area.

Alternative II is expected to contribute to the recovery of the aquatic resources within the analysis area, mostly by decommissioning roads to restore hydrologic function.

### **Alternative III - Alternative Action**

#### **Direct and Indirect Effects**

##### **Landscape Pattern (Issue 1)**

*Key Indicator:* Habitat Connections

The expected direct effect from this action is increased disturbance to the present pattern of habitat connections, namely the elimination of approximately 106 acres of late-seral (60-80 year-old) habitats and 31 acres of mature/old-growth (100-200 year-old) habitats. This disturbance is expected to impact some late-seral habitat associates. The resulting landscape pattern is still expected to provide connections to LSRs and other habitat reserves within the analysis area (see Wildlife Specialist's Report, Section F of the Analysis File). Although Alternative III entails less harvest than Alternative II, this benefit is offset by the proposed overall increase in temporary road construction. Overall, the impacts are considered to be higher than Alternative II.

The indirect effects are likely to be the same as with Alternative II.

*Key Indicator:* Snag and upland down log availability

With the exception of the few additional snags that may be felled during new road construction, the direct and indirect effects of this alternative would be the same as with Alternative II.

#### Contribute to the District's Probable Sale Quantity (PSQ)(Issue 2)

This alternative would provide an estimated timber volume of 7,831 MBF, which would contribute to the District's decadal PSQ commitment. Approximately 6,081 MBF would contribute to the non-interchangeable decadal volume for the District that is to come out of Key Watersheds. Approximately 157 acres (of the 408 total acres treated) would be commercially thinned and approximately 114 acres (of the total acres treated) would be density management thinned in the Connectivity. These treatment acres would provide options in the future that would not be available if thinning of these stands were deferred.

#### Riparian Reserve Functions (Issue 3)

The modified Riparian Reserve network is designed to adequately protect aquatic resources and meet the ACS objectives (ROD Standard & Guidelines p. B-11), specifically with respect to protecting the sediment regime, LWD dynamics, and riparian dependent/associated species.

*Key Indicator:* Surface erosion and mass wasting potential

There is likely to be a short-term increase in surface erosion associated with yarding roads in some units (where skyline replaces helicopter yarding). Intact vegetation within Riparian Reserves should prevent overland transmission of sediments from proposed harvest units to streams. Therefore, there is not likely to be a measurable increase in sediment delivery to streams from surface erosion within proposed harvest units.

The proposed 900 feet of road construction through the Riparian Reserves associated with units 3, 7, 8, and 14 would not increase the mass wasting potential of these areas, because the proposed road locations are stable. All 900 feet of road construction proposed within Riparian Reserves would be constructed in the dry season and fully decommissioned (including de-compaction, water barring, seeding and mulching) after use. This proposed construction does not include any stream crossings. Therefore, surface erosion of the site should be minimal.

Other effects would be the same as Alternative II.

*Key Indicator:* LWD recruitment potential

The proposed 100 feet of road construction through the Riparian Reserve associated with unit 3 would not adversely affect the LWD recruitment potential to the stream in question, because the area has already been harvested. Approximately 200 feet of the proposed road construction through the Riparian Reserve associated with unit 14 would adversely affect the LWD recruitment potential to a non-fish-bearing intermittent stream, because the proposed road location is within 100 feet of the channel. The remaining 600 feet of proposed road construction through the Riparian Reserves associated with units 7, 8, and 14 would be at least

100 feet from any streams, thus is not expected to adversely affect the LWD recruitment potential of these sites. All trees cut from the road prism during new construction through Riparian Reserve would be left on site to mitigate impacts to LWD dynamics.

The effects of Riparian Reserve boundary adjustments and thinning in Riparian Reserves would be the same as Alternative II.

*Key Indicator:* Riparian dependent/associated species

Same as Alternative II, except this alternative would result in a reduction of seven acres (approximately 0.19%) of the interim BLM-managed Riparian Reserve habitat available to riparian dependent/associated species.

#### Roads (Issue 4)

*Key Indicator:* Open road density

New construction would result in a significantly higher short-term increase in open road density than under Alternative II. However, the net affect of all proposed road work is the same as Alternative II.

*Key Indicator:* Spread of *Phytophthora lateralis* (PL)

There would be 8.0 miles of road closures, which would reduce the spread of infection by vehicles. Roadside sanitation of POC would occur on 8.5 miles of road (103 acres of sanitation) on BLM administered lands, thus reducing the spread of PL into adjacent stands by eliminating the host plants.

Alternative III carries a slightly higher risk for the spread of PL than Alternative II, because skyline yarding replaces helicopter yarding for 145 acres, and all of Unit 22 would be planned for winter operations. However, mitigation measures would abate this risk.

A slightly higher risk is involved with ground based yarding systems, but again, the use mitigation measures would prevent the spread of PL into the stand. Ground-based yarding would occur on only 9 acres, and use of designated skid trails would disturb soil on less than 12% of the harvest area.

Use of mitigation measures (equipment washing, roadside sanitation, and seasonal restrictions on hauling and yarding) in this action should result in a negligible overall risk of spreading PL into the timber stands.

*Key Indicator:* Sediment delivery

This alternative requires 2.2 more miles of new road construction than Alternative II. As a result, there would be a proportional increase in sedimentation during construction, renovation, and decommissioning. Roads would be decommissioned after use as in Alternative II; this procedure would restore hydrologic function. Sediment delivery is expected to be within the range of natural variability.



*Key Indicator:* Impacts to resources

The 900 feet of semi-permanent roads constructed in Riparian Reserves would have a prism width of no more than 25 feet. The resulting tree spacing within the temporary road prisms approximates the expected spacing in mature/old growth forests in this watershed (approximately 35' X 35'). All roads constructed in Riparian Reserve would be fully decommissioned after use. Furthermore, all trees felled within Riparian Reserves to accommodate temporary road construction would remain on site. There would be a short-term impact due to increase in the amount of road surface in the Riparian Reserves. However, the long-term impacts to riparian habitats are considered to be negligible, due to the design features.

Because of the additional road construction, the overall impacts of roads to wildlife in this alternative are greater than Alternative II. This alternative has a lower overall impact to wildlife than Alternative I due to the road decommissioning.

All other impacts would be the same as those in Alternative II.

## **Cumulative Effects**

### Landscape Pattern (Issue 1)

*Key Indicator:* Habitat Connections

This alternative converts approximately 0.19% of the interim Riparian Reserves to GFMA. All other cumulative effects are similar to Alternative II.

*Key Indicator:* Snags and upland down logs  
Same as Alternative II.

### Contribute to the District's Probable Sale Quantity (PSQ)(Issue 2)

Alternative III provides approximately 2.4% of the decadal PSQ commitment for the District and approximately 20% of the non-interchangeable PSQ volume for the District from Key Watersheds.

### Riparian Reserve Boundary Functions (Issue 3)

*Key Indicator:* Surface erosion and mass wasting potential  
Same as Alternative II.

*Key Indicator:* LWD recruitment potential  
Same as Alternative II.

*Key Indicator:* Riparian dependent/associated species  
Same as Alternative II.

#### Roads (Issue 4)

*Key Indicator:* Open road density  
Same as Alternative II.

*Key Indicator:* Spread of *Phytophthora lateralis* (PL)  
The BLM is proposing harvest treatments on 408 acres (5%) of land out of a total of 7,368 acres in the analysis area. In addition, the USFS manages 4,235 acres in this analysis area. USFS also strives to minimize the spread of PL (POC *Phytophthora* Control EA, 1996). Potential total impact on Federal lands in the analysis area is 3.5% of the total Federal ownership. Under this alternative, the spread of PL is expected to be negligible on BLM-administered lands.

The 103 acres of BLM land that would have POC cut during roadside sanitization represents less than 1% of the total BLM land that contains POC in this analysis area. The Proposed management actions in the LSF Coquille Analysis Area are not likely to effect the continued existence of Port Orford Cedar over its range.

*Key Indicator:* Sediment delivery  
Same as Alternative II.

*Key Indicator:* Impacts to resources  
Same as Alternative II.

#### **Other Environmental Effects**

Analysis of all the alternatives has shown no impacts to the following:

Areas of environmental critical concern  
Farm lands, prime or unique  
Flood plains  
Wild and scenic rivers  
Wilderness values

See Section B of the Analysis File.

#### **Common to All Action Alternatives**

##### Air Quality

Prescribed burning would adhere to smoke management/air quality standards of the Clean Air Act and State Implementation Plan. This would mitigate the expected impacts.

### Cultural Resource Values

Significant prehistoric or historic resources have not been located within these EA units. One prehistoric site has been documented near Unit 5, but this site would not be adversely impacted by the project (see Section L of the Analysis Files for details). It is not anticipated that any significant cultural resources would be impacted by this project. However, if any potential cultural resources are encountered during the project, all work in the vicinity must stop and the District Archeologist must be notified at once.

### Native American Religious Concerns

The LSF Coquille analysis area is within the territory occupied by the Coquille Indians in the past, according to ethnographic information. Today, it still is within the area of interest of the Coquille Indian Tribe. No known impacts on American Indian social, economic or subsistence rights are anticipated to result from the proposed actions. Likewise, no impacts are anticipated on the American Indian Religious Freedom Act. However, the Coquille Indian Tribe is being provided the opportunity to evaluate and comment on the proposed actions.

### Hazardous Materials/Solid Waste

No hazardous materials have been found to date in the action alternative units. Section K of the analysis File contains the HazMat review. All Action Alternatives are subject to Federal and State regulatory guidelines for petroleum product use and storage. Spill Prevention, Control and Countermeasure Plans (SPCC) are required under the Oregon Forest Practices Act (Rule OAR 629-57-3600) and by Department of Environmental Quality (Rule OAR 340-108, inclusive). Spill containment capabilities on equipment sites are recommended.

### Threatened and Endangered Species

The analysis area is within the range of four federally listed Threatened and Endangered Species : Northern Spotted Owl, Peregrine Falcon, Bald Eagle, and Marbled Murrelet. Formal consultation with the US Fish & Wildlife Service (USFWS) has been completed and documented in the Biological Opinion for O&C Road Use Permits/Tailhold Trees and Fourth Quarter FY 96-2000 Programmatic Projects, Coos Bay District, Bureau of Land Management, dated August 28, 1996. Currently, the District is in the process of finalizing its 1997 Biological Assessment addressing this timber sale and will meet recommended actions provided in the future Biological Opinion.

#### Marbled Murrelet

##### Direct, Indirect, and Cumulative Effects

Protocol surveys have been conducted in most of the analysis area; murrelets have been detected and occupied sites have been delineated. Murrelet survey protocol will be completed on the remainder of the planning area prior to harvest activities; if additional occupied behavior is detected, affected units will be dropped or harvest season will be modified as appropriate to comply with the results of consultation with the USFWS. No impacts to murrelets are anticipated.

#### Northern Spotted Owls

##### Direct, Indirect, and Cumulative Effects

Regeneration timber harvest would remove suitable nesting, foraging, and dispersal habitat from within the home range of some northern spotted owls. Removal of habitat from within their home range exacerbates the critical condition of owls in the planning area and decreases site viability. However, the conservation strategy for the Northern Spotted Owl within the Northwest Forest Plan relies primarily on a system of large reserve areas, and viable owl populations outside these reserves are not necessarily essential for the conservation of the species. Impacts to the conservation of the species will be considered during formal consultation with the USFWS.

#### Bald Eagles

##### Direct, Indirect, and Cumulative Effects

One pair of bald eagles are known to nest within the analysis area. All harvest actions associated with this sale are greater than 1.0 mile from the site; therefore, there are no direct, indirect or cumulative effects anticipated.

#### Peregrine Falcons

##### Direct, Indirect, and Cumulative Effects

Peregrine falcons have been observed and documented within the analysis area. However, no peregrine falcon nest sites have been located. Field and office review of the proposed units have been conducted ensure that there is no "take " of this species.

#### Noxious Weeds

Noxious weeds, such as Scotch broom, French broom, gorse, and tansy ragwort, are present within the analysis area. The locations are currently scattered throughout the analysis area and occur primarily along roads and in disturbed areas. Any disturbance is likely to increase the chances of noxious weed infestation. The design features outlined in the action alternatives (i.e., washing of vehicles prior to entry and mulching/seeding) would help reduce the risk of noxious weed spread.

#### Sensitive Plant Survey

No negative impacts are expected to any special status plant species occurring within the analysis area. A complete description of the special status plant survey and results is included in the analysis file for the EA.

#### Irreversible and Irretrievable Commitment of Resources

Some irreversible and irretrievable commitment of resources would result from the proposed actions. Crushed rock from quarries would be committed to reconstruction and construction of the road system. Energy used to grow, manage, and harvest trees, and in other management activities is generally irretrievable. Irreversible and irretrievable commitments as stated above are discussed in the Coos Bay District FRMP.

## **V. LIST OF PREPARERS**

The following is a list of the Sandy-Remote Analysis Area Interdisciplinary Team members:

### Core ID Team Members

Michael S. Kellett	Fisheries Biologist
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J. Michael Oxford	Forester/Team Lead

### Other Contributors:

Dan Carpenter	Hydrologist
Jay Flora	GIS/ARD Coordinator
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Stephan Samuels	Archeologist
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Dale Stewart	Soil Scientist
Timothy Votaw	Environmental Protection Specialist

## **VI. LIST OF AGENCIES AND PERSONS CONSULTED**

Don Goheen, Plant Pathologist/Entomologist, SW Oregon Forest Insect and Disease Technical Center, October 1997.

Elizabeth McLanahan, BLM Washington Office

## **Appendix**

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